

IN THE CLAIMS:

Please cancel claims 1-32 without prejudice or disclaimer, and substitute new Claims 33-64 therefor as follows:

Claims 1-32 (Cancelled).

33. (New) A solid oxide fuel cell comprising:

a cathode;

at least an electrolyte membrane, and

an anode comprising a ceramic material and an alloy comprising nickel and at least a second metal selected from aluminium, titanium, molybdenum, cobalt, iron, chromium, copper, silicon, tungsten and niobium, said alloy having an average particle size not higher than 20 nm.

34. (New) The solid oxide fuel cell according to claim 33 wherein said alloy has an average particle size not higher than 16 nm.

35. (New) The solid oxide fuel cell according to claim 33, wherein said alloy has a mean surface area higher than 20 m²/g.

36. (New) The solid oxide fuel cell according to claim 35, wherein said alloy has a mean surface area higher than 30 m²/g.

37. (New) The solid oxide fuel cell according to claim 36, wherein said alloy has a mean surface area higher than 40 m²/g.

38. (New) The solid oxide fuel cell according to claim 33, wherein said alloy has a second metal content of 1% by weight to 99% by weight.

39. (New) The solid oxide fuel cell according to claim 38 wherein said alloy has a second metal content of 30% by weight to 70% by weight.

40. (New) The solid oxide fuel cell according to claim 39, wherein said alloy has a second metal content of 40% by weight to 60% by weight.

41. (New) The solid oxide fuel cell according to claim 33, wherein said alloy has a nickel content of 1% by weight to 99% by weight.

42. (New) The solid oxide fuel cell according to claim 38, wherein said alloy has a nickel content of 30% by weight to 70% by weight.

43. (New) The solid oxide fuel cell according to claim 39, wherein said alloy has a nickel content of 40% by weight to 60% by weight.

44. (New) The solid oxide fuel cell according to claim 33, wherein said second metal is copper.

45. (New) The solid oxide fuel cell according to claim 33, wherein said ceramic material is selected from yttria-stabilized zirconia (YSZ), cerium gadolinium oxide (CGO), samarium-doped ceria (SDC), mixed lanthanum and gallium oxides.

46. (New) The solid oxide fuel cell according to claim 33, wherein said ceramic material has a particle size not higher than 50 nm.

47. (New) The solid oxide fuel cell according to claim 33, wherein said ceramic material has a particle size of 1 nm to 25 nm.

48. (New) The solid oxide fuel cell according to claim 33, wherein said ceramic material is doped with at least one cation selected from calcium, magnesium, strontium, lanthanum, yttrium, ytterbium, neodymium and dysprosium.

49. (New) The solid oxide fuel cell according to claim 45, wherein said ceramic material is cerium gadolinium oxide (CGO).

50. (New) The solid oxide fuel cell according to claim 33, wherein said cell performs in substantially dry hydrocarbon.

51. (New) A cermet comprising a ceramic material and an alloy having a particle size not higher than 20 nm.

52. (New) A process for preparing a cermet comprising a ceramic material and a metallic material comprising an alloy comprising nickel and at least a second metal selected from aluminum, titanium, molybdenum, cobalt, iron, chromium, copper, silicon, tungsten, and niobium, said process comprising the steps of:

- a) producing a precursor of the metallic material;
- b) producing the ceramic material;
- c) combining said precursor and ceramic material to obtain a composite and
- d) reducing said composite

wherein step a) comprises the steps of

- a-1) dissolving a hydrosoluble salt of Ni and a hydrosoluble salt of a second metal in water;
- a-2) adding a chelating agent to the solution resulting from step a-1);
- a-3) adding an oxidizing agent to the solution resulting from step a-2); and
- a-4) isolating said precursor.

53. (New) The process according to claim 52, wherein step b) comprises steps analogous to steps a-1) to a-4).

54. (New) The process according to claim 52, comprising the step of adjusting the pH of the solution resulting from step a-2) to a value higher than about 5.

55. (New) The process according to claim 52, wherein step d) is carried out with hydrogen at a temperature ranging between 400°C and about 1000°C.

56. (New) A method for producing energy comprising the steps of:
feeding at least one fuel into an anode side of a solid oxide fuel cell comprising an anode comprising a ceramic material and an alloy comprising nickel and at least a second metal selected from aluminium, titanium, molybdenum, cobalt, iron, chromium, copper, silicon, tungsten, and niobium, a cathode and at least an electrolyte membrane disposed between said anode and said cathode;
feeding an oxidant into a cathode side of said solid oxide fuel cell; and
oxidizing said at least one fuel in said solid oxide fuel cell, resulting in production of energy.

57. (New) The method according to claim 56, wherein the at least one fuel is hydrogen.

58. (New) The method according to claim 56, wherein the at least one fuel is an alcohol.

59. (New) The method according to claim 56 wherein the at least one fuel is a hydrocarbon in gaseous form.

60. (New) The method according to claim 59, wherein the hydrocarbon is substantially dry.

61. (New) The method according to claim 56, wherein the at least one fuel is a hydrocarbon in liquid form.

62. (New) The method according to claim 56, wherein the at least one fuel is substantially dry methane.

63. (New) The method according to claim 56, wherein the fuel is internally reformed in the anode side.

64. (New) The method according to claim 56, wherein the solid oxide fuel cell operates at a temperature ranging from 500°C and 800°C.